Small Business Innovation Research/Small Business Tech Transfer

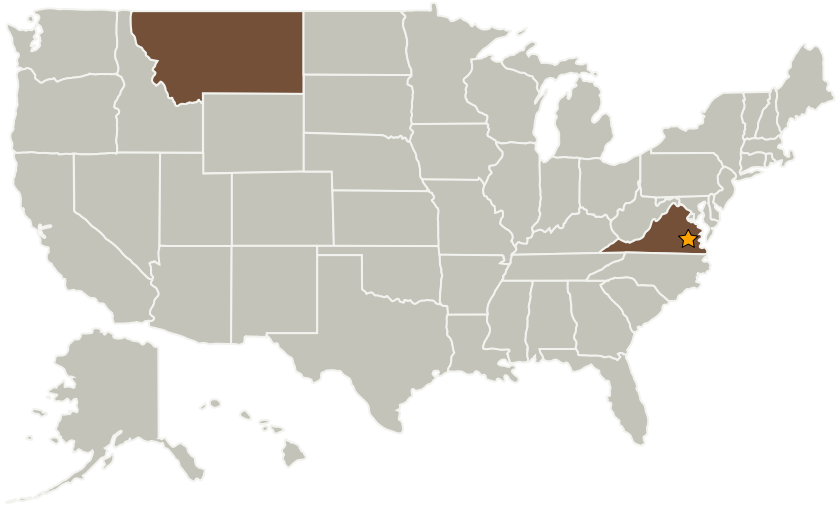
Waveguide Phase Modulator for Integrated Planar Lightwave Circuits in KTP, Phase II

Completed Technology Project (2007 - 2009)

Project Introduction

This SBIR Phase II effort proposes the development and integration of a Planar Lightwave Circuit (PLC) into an all fiber-based seed laser system used in high spectral resolution aerosol and cloud lidar applications. The PLC integrates a frequency doubling element, a waveguide splitter, and phase modulator into a monolithic, waveguide-based device. This technology is important for lidar systems requiring high frequency stability and accuracy. The proposed device, with the proper IR input, will generate the required visible radiation, spectrally formatted for the HSRL seed laser stabilization scheme. The PLC concept advances NASA's lidar systems due to its compact, efficient, and reliable design, thus enabling use on small aircraft and satellites. The key objective in this SBIR Phase II proposal is to develop and incorporate the PLC into a deployable, all fiber-based seed laser system for NASA-LaRC's HSRL cloud and aerosol measurements.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
ADVR, Inc.	Supporting Organization	Industry	Bozeman, Montana

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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Langley Research Center (LaRC)

Responsible Program:

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Montana	Virginia

Project Transitions

November 2007: Project Start

November 2009: Closed out

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.5 Lasers